U.S. Nuclear Regulatory Commission and Department of Homeland Security/Federal Emergency Preparedness Management Agency Public Meeting Regarding Emergency Preparedness (EP) Regulations and Guidance for Commercial Nuclear Power Plants

Summary and Analysis of Site-Specific Comments

(Received Between August 31 and October 31, 2005)

U.S. Nuclear Regulatory Commission
Office of Nuclear Security and Incident Response

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Introduction

On August 31 and September 1, 2005, the Nuclear Regulatory Commission (NRC) Emergency Preparedness Directorate, in conjunction with the Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA), held a public meeting to obtain input regarding emergency preparedness (EP) requirements and guidance for commercial nuclear power plants.[1] Approximately 200 stakeholders attended the meeting that was held at the Bethesda North Marriott Hotel and Conference Center in Maryland. In addition to officials from these coordinating agencies, the spectrum of attendees included representatives from State, local, and tribal governments; public interest groups; the nuclear industry; and the general public. Appendix A contains a list of the meeting attendees who registered.

During the first day of the meeting, a roundtable of invited panelists discussed topics related to the ongoing review of EP regulations and guidance. Appendix B contains a list of the roundtable participants. The second day was devoted to addressing comments and questions captured during an NRC- and FEMA-sponsored workshop at the 2005 National Radiological Emergency Preparedness Conference.

In addition to comments transcribed from the 2-day public meeting, the NRC accepted written comment submissions until October 31, 2005. Commenters, representing a variety of stakeholder groups and interests, submitted written comments. The NRC also received comments via cards submitted at the public meeting.

Exhibit 1 shows the commenter identification number (commenter ID) associated with each individual that spoke during the 2-day public meeting. Exhibit 2 identifies the individuals providing written comments and the commenter ID associated with each public comment document that NRC received during the public comment period. The comment summaries reference these ID numbers. For public meeting comments, the commenter ID is followed by either a “-1" or a “-2.” The “-1" signifies a comment from the first day of the public meeting, while the “-2 signifies a comment from the second day of the public meeting.

This document provides the analysis of site-specific comments provided during and after the August 31 and September 1, 2005, “Public Meeting to Discuss Selected Topics for the Review of Emergency Preparedness Regulations and Guidance for Commercial Nuclear Power Plants.” Responses were provided to generic comments on the public meeting Website on February 28, 2006. Additional time and resources were needed to prepare the responses to the site-specific comments.

[1] 70 *Federal Register* 43721-43725, July 28, 2005.

Exhibit 1. Individuals Providing Site-Specific Comments During the Public Meeting (August 31 – September 1, 2005)[2]

Commenter ID	Commenter	Affiliation
M002	Rochelle Becker	Alliance for Nuclear Responsibility
M009	Eric Epstein	TMI-Alert, Inc.
M022	Mary Lampert	Town of Duxbury, MA
M038	Lisa Rainwater	Riverkeeper
M040	Mike Rose	Emergency & Support Services, City of Dana Point, CA
M046	Tracey Vardas	Office of Emergency Services, San Luis Obispo County, CA

[2] Comments captured during the public meeting are identified in alphabetical order by the speaker's last name. The accession numbers for the first and second days of the public meeting are ML052620356 and ML052620349, respectively. These accession numbers indicate the location of the public meeting transcripts in the ADAMS system.

Exhibit 2. Individuals Submitting Written Site-Specific Comments During the Comment Period[3]

Commenter ID	Commenter	Affiliation	ADAMS Accession Number
PC 1	Rochelle Becker	Alliance for Nuclear Responsibility	ML052590251
PC2	Rochelle Becker	Alliance for Nuclear Responsibility	ML052590036
PC5	Mary Lampert	Town of Duxbury, MA	ML052640166
PC8	Susan Shapiro	Rockland F.U.S.E.	ML052910026
PC12	Morgan Rafferty	San Luis Obispo Mothers for Peace	ML053050437

[3] Comments captured during the public meeting are identified by a prefix PM and individual comment submissions are labeled in chronological order with the prefix PC. The accession number indicates the location of the written comments in the ADAMS system.

Site Specific Comments and Analyses

Site: Indian Point

Comment: One commenter noted that a tabletop drill for Indian Point's radiological emergency preparedness plan (REPP) was conducted in June of 2004 with a mock terrorist attack as part of the emergency scenario. The tabletop did not simulate a release of radiation. This commenter stated that a true evaluation of the Indian Point REPP would simulate a mock terrorist attack that leads to a fast-breaking release of radiation and simultaneous disabling of other elements of infrastructure, including roads and bridges [M038-1].

Analysis: Since the Three Mile Island accident, evaluated exercised have involved a demonstration of the capabilities of both the licensee and offsite response organizations (OROs) to respond to a radiological release. The purpose of the June 2004 Indian Point Exercise was to provide the opportunity for the NRC, FEMA, licensee, and OROs to focus on and learn from the security-related aspects of a terrorist attack on a nuclear power plant. The evaluation is required by NRC regulations.[4] As in other radiological EP exercises, onsite equipment that would normally be available in a real situation was assumed to fail in order to test the onsite and offsite emergency response. Required exercises include a variety of initiators, scenario challenges, and demonstrated responses over the exercise cycle period. For OROs, required evaluation criteria are described in the "FEMA Interim Radiological Emergency Preparedness Program Manual," August 2002, and includes meeting objectives for protective action decisionmaking and protective action implementation (which includes traffic control). During the 2004 exercise, both of the evaluation objectives were demonstrated. With the completion of the June 2004 exercise, Indian Point has tested the three basic components of security and EP: onsite-security (through a "force-on-force" exercise in 2003); offsite crisis management by combined Federal, State, and local security/law enforcement resources (through a tabletop exercise in April of 2004); and EP functions (through the June 2004 exercise).

Comprehensive Reviews by DHS, would evaluate the impact on a site-specific basis due to concurrent damage or attack on other critical infrastructures/key elements. The DHS Comprehensive Review was conducted at Indian Point during September 2005.

The NRC staff is currently evaluating industry's response to Bulletin 2005-02, which will involve upon final implementation the use of a terrorist-based scenario as part of a biennial exercise at each site once every exercise cycle. The inclusion of security-based exercises would be expected to provide for licensees and emergency responders to demonstrate emergency preparedness for a wider range of event scenarios. The NRC will continue to examine what should be included in the drill and exercise programs to make them more effective in protecting against terrorist attack scenarios.

Comment: A commenter submitted a copy of signed petitions that had been previously

[4] 10 CFR Part 50, Appendix E, Section IV.F.2.b.

submitted to FEMA requesting that FEMA and NRC not certify the emergency evacuation plan for Indian Point [M038-1].

Analysis: The NRC staff evaluated the commenter's petition and determined that this petition was submitted to the FEMA Director on May 1, 2003. Because the subject matter of the petition is offsite EP, FEMA (now DHS) was the appropriate agency to review this petition. FEMA responded to the petitioner in a letter dated May 20, 2003. FEMA subsequently provided their determination of reasonable assurance that the offsite preparedness for the Indian Point Energy Center was adequate and stated its results in a letter to Governor Pataki on July 25, 2003.

All licensees are required by NRC regulations to perform an evacuation time estimate (ETE) for the plume exposure emergency planning zone[5] (EPZ) surrounding the plant.[6] One of the many factors considered in an ETE is an estimation of the number of people to be evacuated. In estimating the number of people to be evacuated, three population segments are considered: permanent residents, transients, and persons in special facilities (in hospitals, nursing homes, schools, etc.). The ETEs identify potential traffic impediments and allow for development of traffic management plans. The ETE is also used in the development of the protective measures portion of the licensee and state/local emergency plans. NRC regulations require licensees to have provisions in their emergency plans to ensure that the emergency plan and its implementing procedures are kept up to date.[7] The NRC issued RIS 2001-16, "Update of Evacuation Time Estimates," in August 2001 to alert licensees to the possible need to update their ETEs as the result of the year 2000 census data.

Site: California power plants

Comments: Many comments addressed the need for all California power plants to include preparedness plans for damage and accidents caused by earthquakes and other natural disasters [PC1, PC2, M002-1, M002-2, M046-1].

Analysis: The decision that no specific emergency preparedness measures need to be established to account for earthquakes is summarized in SECY-86-268, "Withdrawal of Proposed Rule Regarding Consideration of Earthquakes and Emergency Planning." The NRC's decision was based on the view that the seismic design of the plant rendered extremely small the probability that an earthquake up to and including the Safe Shutdown Earthquake,[8] would result in a radiological release. While a radiological release might result from an earthquake greater than the Safe Shutdown Earthquake, the probability is extremely low and emergency response would have marginal benefit because of its impairment by offsite damage.

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[5] 10 CFR 50.54(s)(1) and 10 CFR 50.47(c)(2). The plume exposure EPZ consists of an area about 10 miles in radius around a plant.

[6] 10 CFR Part 50, Appendix E, Section IV.

[7] 10 CFR Part 50, Appendix E, Section IV.G.

[8] 10 CFR Part 50, Appendix S, Section III and Section IV(a)(1)

The likelihood of a simultaneous occurrence of both a radiological release from the plant caused by an event other than an earthquake, and an earthquake that would complicate an emergency response, was judged to be extremely low. The NRC observed that existing emergency plans have considerable flexibility to handle the disruptions caused by various natural phenomena that occur with far greater frequency than do damaging earthquakes, and that this implicitly includes some flexibility to handle disruptions from earthquakes as well.

Site: San Onofre

Comment: Two commenters noted that the San Onofre Nuclear Generating Station (SONGS) is located in close proximity to several critical infrastructure points which have varying population densities, such as a Marine base, a freeway, and a state park. The commenters would like evacuation and notification plans to include these elements [PC1, M040-2].

Analysis: In the SONGS plume exposure EPZ, sirens are distributed across the county, through state parks, Camp Pendleton, San Clemente, Dana Point, and San Juan Capistrano for notification purposes. Informational radio and television broadcasts will be provided by the Public Information Officer early in the response period to avoid undue concern to the public in the other areas.

As a means of notification, a dedicated phone line (the Interjurisdictional Telephone System) has been installed between the plant, the county, and other offsite jurisdictions within the plume exposure EPZ. SONGS will notify the county, which will in turn notify those agencies and officials in the county emergency organization. Various procedures have been developed to alert/warn the public in the EPZ of emergencies at SONGS. They include: Emergency Alert System (EAS) messages, sirens, and route alerting (public address systems and door-to-door contacts.)

The State Parks and Recreation Department has jurisdiction over San Onofre State Beach, Doheny State Beach, and San Clemente State Beach and the San Mateo Campground. The Coast Guard has jurisdiction of the ocean and will notify vessels at sea by marine radio and other means in the event of an emergency at SONGS.

The Department of Transportation supports the operational area and the California highway patrol by establishing road closures, traffic control, detours and/or alternate routes, assisting in the evacuation process and providing media information.

Site: Three Mile Island

Comments: One commenter expressed a concern related to the plant's aging workforce and the potential for the loss of historical continuity [M009-2].

Analysis: Concerns of human capital, aging workforce, and historical continuity are the primary responsibility of NRC's licensees. However, NRC requires training of licensed operators per 10 CFR 55.4. Training programs are typically developed using a systems approach to training (SAT). As defined in 10 CFR 55.4, a training program developed using

SAT principles is a training program that includes the following five elements:

(1) a systematic analysis of the job to be performed,
(2) learning objectives derived from the analysis which describe the desired performance after completion of the training,
(3) training designed and implemented based on the learning objectives,
(4) evaluation of trainee mastery of the objectives during training, and
(5) evaluation and revision of the training based on the performance of trained personnel in the job setting.

Thus a training program developed using SAT principles need not compensate for new or experienced workers. The training adjusts as appropriate to ensure mastery of the objectives by workers of all ages and experience levels.

Comment: One commenter expressed a concern regarding compensating farmers in the area for economic losses [M009-2].

Analysis: The Price-Anderson Act,[9] became law on September 2, 1957. The intent of the law is to ensure that adequate funds will be available to satisfy liability claims of members of the public for personal injury and property damage in the event of a catastrophic nuclear accident. The legislation encouraged private investment in commercial nuclear power by placing a cap or ceiling on the total amount of liability each holder of a nuclear power plant license faced in the event of a catastrophic accident. Over the years, the limit of liability for a catastrophic nuclear accident has increased the insurance pool to over $10 billion. Under existing policy, utilities that operate nuclear power plants pay a premium each year for $300 million in private insurance for offsite liability coverage for each reactor unit. This primary insurance is supplemented by a second policy. In the event a nuclear accident causes damage in excess of $300 million, each licensed nuclear reactor would be assessed a prorated share of the excess up to $95.8 million. With 104 plants licensed to operate, this secondary pool contains about $8.6 billion. After 15 percent of this pool is expended, prioritization of the remaining funds is left to the discretion of local jurisdictions. After the insurance pool is used up, responding organizations such as State and local governments can petition Congress for additional disaster relief under the provisions of Price-Anderson. Because virtually all property and liability insurance policies issued in the U.S. exclude nuclear accidents, claims resulting from nuclear accidents are covered under Price-Anderson. See 10 CFR 8.2 for further information about the Price-Anderson Act.

Comment: Two commenters expressed a need for backup plans in the event the Three Mile Island's (TMI) two bridges are damaged [M009-1, M009-2].

Analysis: In the post 9/11 environment a terrorist strike involving the destruction of both bridges is being considered as part of the upcoming DHS Comprehensive Review at TMI (scheduled for April 2006). The purpose of the DHS Comprehensive Reviews is to identify potential areas for enhancements in licensee and ORO response to a terrorist-based event. Therefore, plant-specific features including surrounding infrastructure are considered in these

[9] Pub. L. No. 85-256, 42 USC 2210.

reviews.

Site: Pilgrim

Comment: One commenter stated that Gillette Stadium would be a more appropriate sheltering site than the local high school [M022-1, PC1].

Analysis: There are three reception centers (Bridgewater State College, Taunton High School, and Braintree High School) designated in the REPPs for Pilgrim that have adequate capacities and equipment to monitor (and decontaminate if necessary) and register the evacuees. The evacuees would then be directed to mass care facilities for feeding and sheltering. There are 30 mass care shelters, identified in the REPPs, equipped to shelter and care for the evacuees. The shelters are schools with cafeterias, health units, showers, toilets, gym areas for recreation, and room for beds. These facilities would most likely better accommodate the essential needs of evacuees than a large stadium which is not designed to hold people for an extended period of time. Additionally, Gillette Stadium is an open air stadium (as opposed to a dome or retractable roof stadium), and might expose evacuees to harsh weather conditions such as rain, snow, or frigid temperatures.

Comment: Another commenter expressed that certain geographical areas (like Cape Cod) cannot be evacuated in a timely manner. This commenter urged that emergency plans and procedures should be adapted to the needs of such areas [PC5].

Analysis: Cape Cod is not within the Pilgrim 10-mile EPZ, and therefore does not require evacuation for an incident at the plant. However, the State does have an evacuation plan for the Cape Cod area. This plan is part of the State's all hazards evacuation plan.

Site: Braidwood

Comments: There was a discussion at the public meeting of a recent incident involving subterranean tritium leaks in Illinois. A commenter requested that the Illinois Environmental Protection Agency (EPA) release the results of the residential tap water sampling [M018-1].

Analysis: Although tritium is not an EP regulations and guidance issue, the staff is addressing this stakeholder concern that was raised at the EP public meeting. Tritium, which is the radioactive form of hydrogen, occurs in small quantities in nature and is also produced during reactor operations. The licensee is required to monitor groundwater wells on site and off site for tritium levels. Tritium leaks at the Braidwood site have occurred in the past and have been subject to subsequent inspections by the licensee, NRC, and Illinois EPA. The elevated tritium levels were within Federal limits and were detected only in the owner-controlled area.

In early 2005, the Illinois EPA and the licensee conducted additional offsite monitoring for tritium. On December 6, 2005, the licensee notified the NRC that low levels of tritium had been found in a drinking water well at an offsite residence and that the licensee was continuing to evaluate and characterize the migration of tritium in groundwater near the plant. The licensee's

initial evaluation indicated that the tritium in the groundwater was the result of past leakage from a pipe which carries normally non-radioactive circulating water discharge to the Kankakee River, about 5 miles from the site. Several million gallons of water leaked from the discharge pipe in 1998 and 2000. The discharge pipe is also used for planned liquid radioactive effluent releases with the effluent mixing with the circulating water being discharged (Braidwood, like most nuclear plants, releases small concentrations of radioactive liquids under controlled and monitored conditions and within limits imposed by the NRC). The licensee is continuing to evaluate the tritium contamination to ensure it has identified all possible leakage paths from the circulating water discharge line. Preliminary sampling results from the drinking water well at a residence about 1/4 mile from the site boundary showed a tritium level of 1,150 picocuries per liter, which is a small fraction of the U.S. EPA drinking water standard of 20,000 picocuries per liter.

Samples have been collected at several other residential drinking water wells in the area, and no measurable levels of tritium above background were found, according to licensee data. Measurable levels of tritium have been found off site in shallow monitoring wells drilled recently to assess the tritium movement and in a small pond. The offsite sampling program was initiated after the licensee measured tritium levels as high as 58,000 picocuries per liter in shallow onsite monitoring wells. The highest level found in an offsite shallow monitoring well is 34,000 picocuries per liter. These levels of tritium are a small fraction of NRC limits for radioactive effluent releases to the environment and do not represent a health and safety hazard.

NRC Region III dispatched a radiation specialist to the site on December 1, 2005, to help the NRC resident inspectors review the circumstances of the elevated measurements and the licensee's activities to address the elevated tritium levels. The NRC has also split samples with the licensee for both drinking water wells and monitoring wells and sent the samples to an NRC contract laboratory for independent analysis. Additional NRC independent samples are planned, and information updates will be provided as NRC analytical results become available. Information updates can be found on the NRC website at http://www.nrc.gov/reactors/operating/ops-experience/tritium/sites-grndwtr-contam.html.

The licensee is continuing to evaluate the tritium movement and is developing plans for further monitoring and possible mitigation measures. The licensee issued a news release on December 1, 2005, and has contacted affected property owners as well as State and local officials. NRC Region III has an ongoing inspection. Upon completion of their inspection, the inspection report will be publicly available.

Site: Diablo Canyon

Comments: One commenter noted that while San Luis Obispo County is well-prepared for emergency situations, the public continues to have little confidence in the Diablo Canyon EP plan [PC1, M002-1].

Analysis: The Diablo Canyon emergency plan has been approved by the NRC and meets the emergency preparedness planning standards and requirements. The licensee periodically conducts exercises and drills to test the plan. In addition, the NRC inspects selected drills and biennial exercises for compliance with the plan.